IN THE CLAIMS:

Please amend the following claims:

1. A method of determining a profile, comprising the steps of:

(a) providing a substrate having a repeating structure comprising a plurality of lines, said lines having substantially identical profiles;

(b) illuminating said repeating structure with radiation wherein said radiation diffracts, said diffracted radiation having an intensity;

(c) measuring said intensity;

(d) providing a model structure on a data processing machine, said model structure comprising a repeating structure on said substrate, said model structure comprising a model profile, wherein said model profile comprises an edge having more than one X position;

(e) mathematically predicting a predicted diffracted radiation intensity when said model structure is illuminated with said radiation; and

(f) comparing said predicted intensity with said measured intensity.

23. A method as recited in claim 22, wherein said model further comprises a range of incident angles, an incident light wavelength range, a range of reflected angles, [a lens numerical aperture,] a film index of refraction, and a substrate index of refraction, and wherein said line profile includes line width, edge shape, and film thickness.

24. A method as recited in claim [22]23, wherein said mathematical predicting step (d) comprises using the range of incident angles, the range of incident wavelengths, the range of reflected angles, and Maxwell's equations to predict the amount of light that would be reflected from the model profile.

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27. A method of determining the profile of a repeating structure comprising the steps of:

(a) providing a substrate having a plurality of lines having substantially identical line profiles and spacings;

(b) illuminating said lines with radiation having a range of wavelengths, wherein said radiation reflects with an intensity as a function of wavelength;

(c) measuring the intensity of radiation reflected from said lines as a function of wavelength;

(d) providing a model of the line profile and line spacing, wherein said model of the line profile comprises an edge having more than one X position;

(e) mathematically predicting the intensity of radiation that would be reflected from the model as a function of wavelength; and

(f) comparing the predicted intensity with the measured intensity; and

(g) adjusting the model and repeating steps (e) and (f) to improve agreement in said comparing step (f).

28. An apparatus for determining the profile of a line on a substrate, the apparatus comprising:

a radiation source for illuminating the substrate with radiation, said substrate comprising a repeating structure, said repeating structure comprising a plurality of lines and spaces between said lines, said lines having substantially the same line profile, said spaces being substantially identical, the illuminating of the repeating structure for obtaining diffraction of said radiation, wherein said diffracted radiation has an intensity;

a polarizer for selecting a single polarization of light of incident or diffracted light;

a detector for measuring said intensity;

a data processing machine comprising a computer model structure, said model structure comprising a model repeating structure on a model substrate, said repeating structure comprising a plurality of model lines and model spaces between said model lines, said model lines having substantially the same model line profile, each said model line comprising an edge having more than one X position, said model spaces being substantially identical, said data processing machine for mathematically predicting a predicted diffracted radiation intensity when said model structure is illuminated with said radiation source;

said data processing machine further comprising means for comparing said predicted intensity with said measured intensity; and

said data processing machine further comprising means for adjusting said